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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,611	08/07/2001	Frank Cornelis Penning	NL000452	1413

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EXAMINER

CHEN, TIANJIE

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,611

Applicant(s)

PENNING ET AL.

Examiner

Tianjie Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-14 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 7, 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Final Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

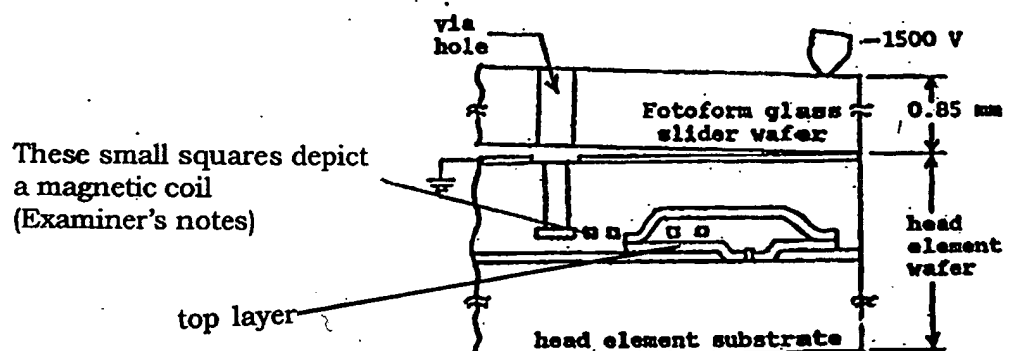
1. Claims 1-6 and 10-14, and 18-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (IEEE Trans on Magnetics, V.25, No.5, pp.3686-3688, 1989).

With regard to claims 1, 5, and 13, Chapman shows a method of manufacturing a magnetic head having a head face/a slider and having an air bearing surface (ABL in Fig. 1a) including small squares which extending parallel to the head face, in which method small squares formed on a top layer at a first side of a first substrate (head element substrate in Figs. 1a-1d), whereafter the first substrate provided with the small squares is adhered (Process Approach Section, lines 10-13) with its first side to a side of a second substrate (Footform glass slider wafer in Figs. 1a-1d), whereafter material of the first substrate (head element substrate) is removed from a second side of the first substrate to expose at least portion of the top layer (Fig. 1C and Process section, lines 13-15), which second side is turned away from the first side, to form the head face/air bearing face surface (Figs. 1c and 1d, "Process Approach" section, lines 7-16).

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Chapman shows small squares in Fig. 1a, which is commonly used in the art to depict a coil but does not specifically pointing out it is a coil.

However, Chapman shows a head element in Fig. 1 with these small squares without indication on what the small squares are. However, Chapman shows in Fig. 1 a head element and shows detailed structure of the head element in Fig. 7, wherein it is explicitly indicated that the small square represents magnetic coil (Enlarged drawing is shown below). One of ordinary skill in the art would have been motivated to recognize that in Chapman's device, a magnetic coil extends parallel to the head face (Introduction, lines 1-4)/ near the air bearing surface.



1b. Bond slider wafer with via holes to head element wafer at about 185°C.

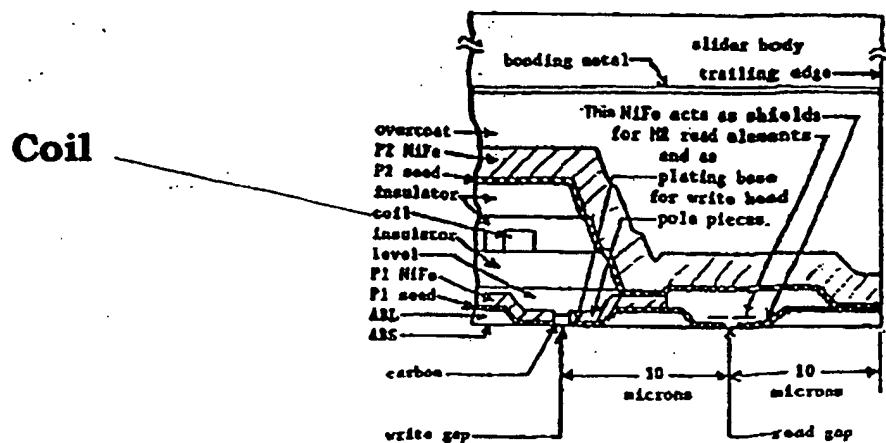
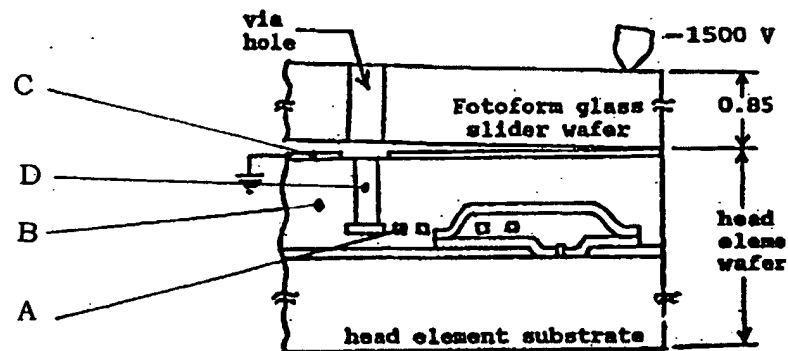


Figure 7. Horizontal Head/Slider Device with Inductive Write & MR Read

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With regard to claim 2, Chapman further shows a substrate of silicon (Experimental Results section, line 14) provided with a top layer of an insulating material (Aluminum oxide, Experimental Results section, lines 12-13) is used as the first substrate, the top layer being adjacent to the first side ("Experimental Results" section, lines 9-15).

With regard to claim 3, Chapman further shows after a step involving the forming of a layer of a metal A (See the Figures with added numerals attached below) on the first substrate, at least one further step involving the forming of a layer of a non-conducting material B and the forming of a further layer of a metal C and the forming of interconnections D between two neighboring layers C and A of metal is performed to create the magnetic coil.



1b. Bond slider wafer with via holes to head element wafer at about 185°C.

With regard to claim 4, Chapman further shows that a substrate of a glass material is used as the second substrate ("Experimental Results" section, line 3).

With regard to claims 6 and 14, as described above, Chapman further shows on a silicon substrate a top layer of an insulation material is provided in order to form the

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first substrate, the top layer being adjacent to the first side, wherein a substrate of glass is used as the second substrate, and wherein the silicon substrate is removed after adhering of the first substrate, to the second substrate.

With regard to claims 10 and 18, Chapman shows a slider manufactured by the method as claimed in the Claims 5/14.

With regard to claims 11 and 19, Chapman further shows a top layer ABL forms a protective layer for the slider (Process Approach section, lines 4-5).

With regard to claims 12 and 20, Chapman shows that the slider as claimed in claim 10/19 is used for a system for magnetically or magneto-optically recording information into a storage medium.

2. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of Crue et al (US 6,452,742).

Chapman shows a method as described above, further shows that during forming of the magnetic coil an alumina layer is formed beside the magnetic coil in the making.

Chapman does not specify it as a heat sink layer.

Crue et al shows a magnetic head and discloses that alumina layer is a heat sink layer (Column 4, lines 36-39).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to realize that the alumina layer in Chapman's device is a heat sink layer as taught by Crue et al.

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3. Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of Wang et al (US 5,978,319).

Chapman shows a method as described above, but does not specify the structure of the coil.

Wang et al shows a horizontal coil for a slider having a stack of interconnected coil layers (Fig. 5) is formed to create the magnetic coil.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the stack taught by Wang et al into Chapman's device. The rationale is as follows: Chapman discloses a head with a brief sketch of the coil but does not specify the details of the coil. Chapman teaches a stack of interconnected coil, which has low inductance. The low inductance raises the resonating frequency of the coil assembly, which increases the data recording rate (Column 4, lines 10-16). One of ordinary skill in the art would have been motivated to use the stack of interconnected coil taught by Wang et al in order to obtain high recording rate.

Allowable Subject Matter

4. Claims 7 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With regard to claims 7 and 15, as the closest reference, Chapman (IEEE Trans on Magnetics, V.25, No.5, pp.3686-3688, 1989) shows a method of manufacturing a magnetic head having a head face/a slider and having an air bearing surface including a magnetic coil which extending parallel to the head face, in which method the magnetic coil formed at a first side of a first

substrate, whereafter the first substrate provided with the small squares is adhered with its first side to a side of a second substrate, whereafter material of the first substrate is removed from a second side of the first substrate, which second side is turned away from the first side, to form the head face/air bearing face surface; ; **but fails to show** during forming of the magnetic coil a metallic layer is formed beside the magnetic coil, which metallic layer is at least partly removed to form a recess during structuring of the face to form the air bearing surface.

- Applicant declares that the invention relates to a slider manufactured by means of the method having a planar magnetic coil adjacent to an air bearing surface and is preferably locally transparent, in such a manner that a light beam can axially pass through a central area of the coil; therefore, the slider has preferably the feature for used in a system for magnetically or magneto-optically recording storage medium (Specification, p. 5, lines 14-21).

Response to Arguments

5. Applicant's arguments filed 03/15/2005 have been fully considered but they are not persuasive.

- Applicant argues: "There is no magnetic coil formed on an edge of a substrate taught or suggested by Chapman. The only coil disclosed within Chapman is illustrated in Figure 7 and is not formed at an edge of any substrate."
- Examiner's answer: "magnetic coil formed on an edge of a substrate" is not cited in claims. It is noted that the features upon which applicant relies (i.e., the features recited above) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the

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specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

- The Office action mailed on 11/16/2004 is a "Non-Final Rejection," which is not a "Final Office Action" as cited in Applicant's response.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


TIANJIE CHEN
PRIMARY EXAMINER